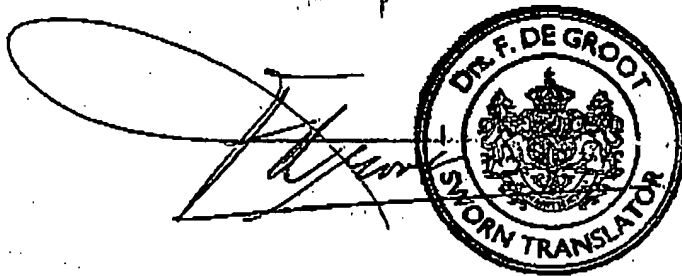


CERTIFICATION

I, dra. F. de Groot, a sworn translator of Dutch nationality,  
of J. Boezerstraat 83, 2552 DL DEN HAAG, the Netherlands,  
do hereby declare that, to the best of my knowledge and belief, the  
attached translation verified by me is a true and accurate  
translation of French patent specification FR 1 890 963.

Signed this *28<sup>th</sup>* day of *November, 2005*



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-translation of French patent FR 1.390.963-

Title: Safety valve for gas cylinder under pressure and use thereof with a vaporizing apparatus.

The present invention relates to an improvement to a safety valve apparatus according to the parent patent.

It is noted that the apparatus allows, on the one side, the release of compressed gas contained in a cylinder provided with an outlet valve and, on the other side, restriction of the pressure of the released gas to a predetermined maximum, the restriction of the pressure being effective even in case of a malfunction or leakages located in the valve of the cylinder, while, owing to the safety resulting therefrom, all risks of the utilizing apparatus, designed to work under low pressure, exploding are removed.

The apparatus according to the present invention, with which the same results can be obtained while appreciable simplifications are offered, is characterized with respect to the apparatus according to the parent patent in that the opening of the valve of the cylinder is produced by a thrust applied to the end thereof, causing the end of the valve to be driven back against a fixed stop, and in that the closing of the valve is effected by the backward movement of the cylinder so that the valve can return to its initial position, while this return occurs when the pressure in the enclosure of the utilizing apparatus applies a force to the head of the cylinder that is greater than the force developed by the thrust applied to its end.

The invention is described hereinbelow with reference to the accompanying drawings. In the drawings:

Figure 1 is a longitudinal cross-sectional view of a safety valve apparatus according to the invention;

Figure 2 represents the same apparatus after a safety system is activated caused by an abnormal flow from the valve of the cylinder.

The apparatus comprises a body 1 in which a cylinder 2 with compressed gas is accommodated. The collar of the cylinder can glide into the toric, air-tight connection 4. A spring 7, which takes support on a cap 8, presses the cylinder towards the end of the body 1 in which a channel 5 is arranged which communicates with the enclosure 10 of the utilizing apparatus by lateral openings 6, normally sealed off by a cylindrical sleeve 9 of resilient material.

When the cylinder is introduced into the body 1 and the cap 8 is completely screwed on, the point of the cylinder valve runs against the surface 11 and the valve is pushed back to the opened position, thus effecting the release of the gas which flows through the channel 5 towards the enclosure 10 after having lifted the resilient sleeve 9.

The pressure prevailing in the enclosure 10, in the channel 5 and in the end of the body 1 applies a force to the front face of the cylinder which opposes the force of the spring 7.

When this force exceeds the force of the spring 7, the cylinder moves back while its collar glides in the toric connection 4. This backward movement continues until the valve is completely closed again, thereby stopping the flow rate of the gas.

If the pressure in the utilizing apparatus is reduced, the spring 7 returns the cylinder to the heart of the body 1, the valve is forced back once more and the gas from the cylinder escapes towards the utilizing apparatus. Therefore, it is clear that owing to the apparatus according to the invention in a given pressure can be maintained the utilizing apparatus depending on the force of the spring 7.

If, following a leakage through the valve, gas escapes from the cylinder although the valve is closed, the pressure of the released gas increases. This increase of pressure results in a further compression of the spring 7 and by a backward movement of the cylinder, which continues until the collar thereof escapes the toric connection 4. Then, the gas escapes through an opening 12 arranged in the body 1, which result in that the pressure of use is limited to the desired value.

As the resilient sleeve 9 lie over the openings 6, it is possible to remove one cylinder and to replace it without the gas contained in the apparatus 10 being able to escape during this operation.

#### ABSTRACT

The object of the invention is an improvement to an apparatus according to the parent invention, characterized in that the opening of the valve of the cylinder is produced by a thrust applied to the end thereof, causing the end of the valve to be pressed back against a fixed stop, and in that the closing of the valve is effected by the backward movement of the cylinder so that the valve can return to its initial position, which backward movement is effected when the pressure in the enclosure of the utilizing apparatus applies a force to the head of the cylinder greater than the force developed by the thrust applied to its end.